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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,653	04/02/2004	Shunpei Yamazaki	0756-7280	9676

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EXAMINER	
SEFER, AHMED N	

ART UNIT	PAPER NUMBER
2826	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/815,653	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39,40,43,44,47,48,51,52,55,56,59-61 and 66-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39,40,43,44,47,48,51,52,55,56,59-61 and 66-69* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/2/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed September 5, 2007 has been entered and claims 41, 42, 45, 46, 49, 50, 53, 54, 57 and 58 have been cancelled.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 39, 43, 60, 61 and 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai et al. ("Wakai") USPN 5,229,644 in view of Tomoike et al. ("Tomoike") JP 6-118440.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**) formed over one of the pair of substrates, wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon (**as in claim 43**); a layer 108 comprising a resinous material comprising acrylic resin (**as in claim 60**) or methyl esters of acrylic acid (**as in claim 61**) (col. 4, line 65) covering the thin film transistor; and a pixel electrode 110 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) being provided on a surface of one of the pair of the substrates (**as in claims 39 and 43**),

but does not specifically disclose resinous substrates facing each other and each having an uneven surface.

Tomoike in figs. 1 and 3 a display device comprising: a pair of resinous substrates 1/12 comprising PES (paragraphs 25 and 31 of machine translated document) which at least one selected from the group consisting of PEN, PES and polymide (**as in claim 68**) facing each other and each having an uneven surface; a thin film transistor 2 formed over one of the pair of substrates, wherein the thin film transistor has a channel formation region 6.

Note the recitation, "wherein the resinous layer palanarizes the uneven surface" constitutes a function language. In re Casey, 152 USPQ 235 (CCPA 1967); see also In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Therefore, in view of Tomoike's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating resinous substrates. The motivation would be to provide substrates with a low cost and readily available material. Therefore, it would have been obvious to combine Wakai and Tomoike so as to yield the device of claims 39 and 43.

4. Claims 40, 44, 60, 61, 66, 67 and 69, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Tomoike.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**), wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon (**as in claim 44**) formed over one of the pair substrates; a layer 108 comprising a resinous material covering the

thin film transistor; and a pixel electrode 110 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) comprising acrylic resin **(as in claim 60)** or methyl esters of acrylic acid **(as in claim 61)** (col. 4, line 65) being provided on a surface of one of the pair of substrates (as in claims 40 and 44), but does not specifically disclose flexible substrate having an uneven surface.

Tomoike in figs. 1 and 3 a display device comprising: a pair of flexible (paragraphs 25 and 31 of machine translated document) substrates 1/12 comprising PES which at least one selected from the group consisting of PEN, PES and polymide **(as in claim 69)** facing each other and each having an uneven surface; a thin film transistor 2 formed over one of the pair of substrates, wherein the thin film transistor has a channel formation region 6.

Note the recitation, "wherein the resinous layer palanarizes the uneven surface" constitutes a function language. In re Casey, 152 USPQ 235 (CCPA 1967); see also In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Therefore, in view of Tomoike's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating flexible substrates. The motivation would be to provide substrates with a low cost and readily available material. Therefore, it would have been obvious to combine Wakai and Tomoike so as to yield the device of claims 40 and 44.

5. Claims 47, 51, 55, 59- 61, 66-68, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Mori JP 3-13273 and Tomoike.

Wakai discloses in figs. 3-13 a display device comprising: a pair of resinous substrates 101/116 facing each other an uneven surface; a thin film transistor 111 comprising a coplanar

thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**) formed over one of the pair of substrates, wherein the thin film transistor has a channel formation region 104; a layer 108 comprising a resinous material comprising acrylic resin (**as in claim 60**) or methyl esters of acrylic acid (**as in claim 61**) (col. 4, line 65) covering the thin film transistor; and a pixel electrode 110 formed over the layer, and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) is provided on a surface of one of the pair of filmy substrates, but discloses neither microcrystalline silicon nor resinous substrate having an uneven surface.

Mori discloses a display device comprising a thin film transistor, wherein the thin film transistor has a channel formation material comprising microcrystalline silicon.

Tomoike discloses in figs. 1 and 3 a display device comprising: a pair of resinous substrates 1/12 comprising PES (paragraphs 25 and 31 of machine translated document) which at least one selected from the group consisting of PEN, PES and polymide (**as in claim 68**) facing each other and each having an uneven surface; a thin film transistor 2 formed over one of the pair of substrates, wherein the thin film transistor has a channel formation region 6.

Note the recitation, "wherein the resinous layer palanarizes the uneven surface" constitutes a function language. In re Casey, 152 USPQ 235 (CCPA 1967); see also In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Therefore, in view of Tomoike's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating resinous substrates. The motivation would be to provide substrates with a low cost and readily available material. Therefore, it would have been obvious to combine Wakai and Tomoike so as

to yield the device of claims 47, 51 and 55. It would have been obvious to employ microcrystalline silicon to achieve a high-speed switching as taught by Mori.

Re claim 59, the limitation fails to further limit the display device structure but only limits the method of making the channel.

6. Claims 48, 52, 56, 59-61, 66, 67 and 69, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai in view of Mori and Tomoike.

Wakai discloses in figs. 3-13 a display device comprising: a pair of substrates 101/116 facing each other; a thin film transistor 111 comprising a coplanar thin film transistor (**as in claim 66**) or an inverted-staggered thin film transistor (**as in claim 67**), wherein the thin film transistor has a channel formation region 104 comprising amorphous silicon formed over one of the pair substrates; a layer 108 covering the thin film transistor; and a pixel electrode 110 formed over the layer or silicon oxide (as in claims 50, 54 and 58), and electrically connected to the thin film transistor, wherein a resinous layer (the lower/upper portion of region 108) comprising acrylic resin (**as in claim 60**) or methyl esters of acrylic acid (**as in claim 61**) (col. 4, line 65) being provided on a surface of one of the pair of substrates (as in claims 40, 42, 44 and 46), but discloses neither microcrystalline silicon nor flexible substrate having an uneven surface

Mori discloses a display device comprising a thin film transistor, wherein the thin film transistor has a channel formation material comprising microcrystalline silicon

Tomoike discloses in figs. 1 and 3 a display device comprising: a pair of resinous substrates 1/12 comprising PES (paragraphs 25 and 31 of machine translated document) which at least one selected from the group consisting of PEN, PES and polymide (**as in claim 68**) facing

each other and each having an uneven surface; a thin film transistor 2 formed over one of the pair of substrates, wherein the thin film transistor has a channel formation region 6.

Note the recitation, "wherein the resinous layer palanarizes the uneven surface" constitutes a function language. In re Casey, 152 USPQ 235 (CCPA 1967); see also In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Therefore, in view of Tomoike's teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Wakai's device by incorporating resinous substrates. The motivation would be to provide substrates with a low cost and readily available material. Therefore, it would have been obvious to combine Wakai and Tomoike so as to yield the device of claims 48, 52 and 56. It would have been obvious to employ microcrystalline silicon to achieve a high-speed switching as taught by Mori.

Re claim 59, the limitation fails to further limit the display device structure but only limits the method of making the channel.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ANS
November 23, 2007

/A. Sefer/
Primary Examiner
Art Unit 2826